ITS Projects in FY 2004

NTIA Projects

Audio Quality Research
Identify and contribute to selected open questions in the areas of digital speech and audio compression, transmission, and quality assessment. Investigate quality assessment and robust speech coding questions related to the deployment of VoIP systems. Deliverables include technical publications, algorithms, software, upgrades to the HDTV laboratory, and technical presentations and laboratory demonstrations as requested.
Project Leader: Stephen D. Voran (303) 497-3839
e-mail svoran@its.bldrdoc.gov

Broadband Wireless Research
Continue development of state-of-the-art measurement systems for collecting broadband radio-wave propagation data. Provide measurement tools and propagation data used for simulation of the spectral efficiency of proposed communication systems. Deliverables include NTIA Reports and a journal article.
Project Leader: Peter B. Papazian (303) 497-5369
e-mail ppapazian@its.bldrdoc.gov

Broadband Wireless Standards
Develop technical means to improve predictions of signal coverage and interference for 3G wireless services through support to ITU-R, TIA TR-8 (Project 25), and other organizations. Building on previous ITS work, develop propagation model comparisons, apply the models to data sets, determine differences during comparison, document results, and start enhancement to ITM of effective antenna height. Deliverables include model enhancements, and standards contributions and leadership.
Project Leader: Paul M. McKenna (303) 497 3474
e-mail pmckenna@its.bldrdoc.gov

Electromagnetic Compatibility Research Support
Advance research in electromagnetic compatibility issues with the technical subcommittee of the Interdepartment Radio Advisory Committee (IRAC); the US Working Party 8B of ITU-R; and the U.S. Administration in ITU-R Study Group 8 and ITU-R Working Party 8B. Provide technical inputs in the form of NTIA Reports; ITU Contributions; presentations at national and international meetings; and participation in national and international meetings.
Project Leader: Frank H. Sanders (303) 497-7600
e-mail fsanders@its.bldrdoc.gov

Maintenance of RCG/JRG-1A/8B Website
Support the U.S. Administration in ITU-R activities by maintaining the U.S. website for the WP 8B Radar Correspondence Group and Joint Rapporteurs Group 1A/8B.
Project Leader: Jeanne M. Ratzloff (303) 497-3330
e-mail jratzloff@its.bldrdoc.gov

Network Interoperability
Derive and use a systems engineering-oriented framework to better understand, and address, the integral components/elements of interoperability and their associated technical issues; analyze real world interoperability issues in the laboratory and use the results to ensure the utility of the framework. Design and conduct related experiments in the ITS Interoperability Research Laboratory. Deliverables include contributions to Project 25/TR-8 meetings.
Project Leader: Randall S. Bloomfield (303) 497 5489
e-mail rbloomfield@its.bldrdoc.gov

Network Performance
Provide objective, expert leadership and key technical contributions in ITU T and related U.S. industry committees responsible for developing broadband network performance, Quality of Service (QoS), Operation, Administration and Maintenance (OAM), and resource management standards.
Project Leader: Neal B. Seitz (303) 497 3106
e-mail nseitz@its.bldrdoc.gov

Networking Technology
Characterize and analyze the fundamental aspects of networks and network interoperability. Continue the development of networking technology methodologies and tools to address network management and network security/protection issues. Deliverables include a technical report, software, and a user manual.
Project Leader: David J. Atkinson (303) 497 5281
e-mail dj@its.bldrdoc.gov

OSM Spectrum Efficiency and Support
Provide support to the OSM initiative to improve spectrum efficiency and effectiveness in Federal mobile radio services in the 162-MHz band in the Washington, DC, area. Finish a Phase 1 report on

the level of service (signal capacity) provided by current Federal radio systems, and begin developing alternative shared system designs to illuminate the advantages and disadvantages of various architecture options.
Project Leader: Robert J. Matheson (303) 497-3293
e-mail rmatheson@its.bldrdoc.gov

Policy Support
Provide engineering and technical support to NTIA in telecommunications policy development. Provide support on various near-term issues, including broadband wireless access, 3rd generation wireless systems, privacy issues, information technology advances, and critical informal protection.
Project Leader: Alan W. Vincent (303) 497 3500
e-mail avincent@its.bldrdoc.gov

RSMS Enhancements
Develop and maintain software, hardware, systems, and equipment to meet the immediate needs of FY 2004 operations tasks.
Project Leader: Randy Hoffman (303) 497 3582
e-mail rhoffman@its.bldrdoc.gov

RSMS 4th Generation Development
Provide new and innovative measurement tools for current and future Radio Spectrum Measurement System (RSMS) capabilities. Major goals are the ability to easily expand measurement and analysis capabilities and to modify the equipment configuration in the field.
Project Leader: Randy Hoffman (303) 497-3582
e-mail rhoffman@its.bldrdoc.gov

RSMS Operations
Provide NTIA with critical measurement support to determine radio spectrum usage across the U.S.; resolve interference problems involving Government radio systems; and determine the emission characteristics of radio transmitter systems that may affect Government operations.
Project Leader: Randy Hoffman (303) 497 3582
e-mail rhoffman@its.bldrdoc.gov

Table Mountain Modernization
Provide upkeep and maintenance of the Table Mountain field site. Provide logistical support to other projects associated with the Table Mountain field site.
Project Leader: John D. Ewan (303) 497-3509
e-mail jewan@its.bldrdoc.gov

Table Mountain Research
Utilize the Table Mountain field site and radio quiet zone to support fundamental research into the nature, interaction, and evaluation of telecommunication devices, systems, and services. Actively solicit research proposals that will serve to expand the knowledge base available to the institute, help identify emerging technologies, and provide for the development of new measurement methods needed to study the characteristics of new devices and systems based on this technology.
Project Leader: J. Wayde Allen (303) 497-5871
e-mail wallen@its.bldrdoc.gov

Third Generation Wireless
Develop error models that accurately characterize the mobile radio link and estimate the effect of the radio channel on fundamental wireless network performance parameters, e.g., throughput, delay, and loss, to be used by both industry and Government. Deliverables include reports and presentations which disseminate the results of tasks to the public.
Project Leader: Robert J. Achatz (303) 497 3498
e-mail rachatz@its.bldrdoc.gov

Third Generation Wireless Interference Modeling and Characterization
Building on previous ITS work, develop interference models for viable PCS technologies, and verify and validate the models using software analysis and hardware measurements. Apply the models in characterizing PCS interference for 3G architectures, and determine operational guidelines and other practical means of mitigating observed interference effects. Deliverables include contributions to G3GRA (formerly T1P1.2) and ITU-R TG-8/1.
Project Leader: Timothy J. Riley (303) 497 5735
e-mail triley@its.bldrdoc.gov

Video Quality Research
Develop technology for assessing the performance of digital video transmission systems such as direct broadcast satellite, digital television, HDTV, video teleconferencing, telemedicine, and e-commerce, and actively transfer this technology to other Government agencies, end-users, standards bodies, and the U.S. telecommunications industry. Deliverables include technical publications, video quality measurement algorithms and software, laboratory upgrades, and technical standards contributions.
Project Leader: Stephen Wolf (303) 497 3771
e-mail swolf@its.bldrdoc.gov

Other Agency Projects

Department of Commerce/National Institute of Standards and Technology

OLES Communication Standards
Provide engineering support, scientific analysis, technical liaison, and test design and implementation to allow the identification/development and validation of interoperability standards for the justice/public safety/homeland security community, and other communication system products and services supporting telecommunications and information technology needs. Provide technical assessments and evaluations of existing and emerging commercial products and services that may provide interim solutions for various interoperability scenarios. Deliverables include technical standards contributions, reports, economic impact statements, guidelines, handbooks, white papers, and other products as requested.
Project Leader: Val J. Pietrasiewicz (303) 497 5132
e-mail valp@its.bldrdoc.gov

Department of Commerce/National Oceanic and Atmospheric Administration/NOAA Weather Radio Program Office

NOAA Weather Radio System Performance Study
Determine the strengths and weaknesses of the National Weather Service's nationwide radio system, to form a basis for further deployment and enhancement. Provide data that characterizes present transmission capabilities, and a comprehensive analysis consisting of field measurements for each mode in the NWR trimode system (voice, alarm tone and SAME). Advise NWS of the performance metrics which can or should be used to evaluate each mode, and provide documentation of the specific measurement methods used.
Project Leader: Christopher J. Behm (303) 497 3640
e-mail cbehm@its.bldrdoc.gov

Department of Defense

Enhancements to Communication System Planning Tool (CSPT) for DOD
Enhance the ITS CSPT model by upgrading the tool to state-of-the-art GIS systems, and beginning the development of an indoor/indoor-outdoor propagation model.
Project Leader: Robert O. DeBolt (303) 497 5324
e-mail rdebolt@its.bldrdoc.gov

International Symposium on Advanced Radio Technologies
Develop and conduct the symposium that addresses emerging, advanced wireless technologies that offer wide application and may affect how the radio spectrum is used. Gather information on these technologies and applications for the sponsor.
Project Leader: J. Wayde Allen (303) 497 5871
e-mail wallen@its.bldrdoc.gov

Department of Justice/Wireless Management Office

Land Mobile Radio (LMR) Usage Statistics and Engineering Studies
Assist the Wireless Management Office's high-level system design efforts aimed at planning the Justice Wireless Network (JWN) by characterizing traffic among Justice law enforcement agencies in selected urban areas, and by performing other research and engineering activities as requested.
Project Leader: Eldon J. Haakinson (303) 497 5304
e-mail ehaakinson@its.bldrdoc.gov

Federal Highway Administration

Spectrum Regulation and Engineering Support
Provide technical support in the development of a differential Global Positioning System (DGPS) radio beacon network for nationwide availability of precision navigation and positioning radio signals. Support includes frequency assignment searches of Government databases; analysis of propagation and interference issues; and electromagnetic compatibility analyses.
Project Leader: John J. Lemmon (303) 497 3414
e-mail jlemmon@its.bldrdoc.gov

Federal Railroad Administration

Railroad Telecommunications Study
Continue technical support to the Federal Railroad Administration as it pertains to railroad telecommunications and the activities of the Association of American Railroads' (AAR) Wireless Communications Task Force (WCTF).
Project Leader: John M. Vanderau (303) 497 3506
e-mail jvanderau@its.bldrdoc.gov

Miscellaneous Federal and Non Federal Agencies

Telecommunications Analysis Services
Develop, maintain, and make available to other Government agencies and to the public, through user friendly computer programs, a large menu of engineering models, scientific and informative databases, and other useful communication tools.
Project Leader: Gregory R. Hand (303) 497 3375
e-mail ghand@its.bldrdoc.gov

National Communications System

Coordination of Land Mobile Radio Deployment Initiatives
Provide engineering studies for the Public Safety Wireless Network (PSWN) to evaluate interference to public safety systems, to compare system architectures, to evaluate system components for interoperability, and to support additional projects as directed by PSWN.
Project Leader: Eldon J. Haakinson (303) 497 5304
e-mail ehaakinson@its.bldrdoc.gov

Digital Land Mobile Radio Standards Development
Assist NCS in developing a comprehensive set of interoperability standards for digital land mobile radio to support law enforcement, public safety, and other critical NS/EP operations. Serve as NCS representative on the Project 25 steering committee and the TIA TR 8 committee, chair the Encryption Task Group, provide systems engineering support to other Task Groups, develop Project 25 Phase 3 security standards, and coordinate Project 25 activities with other Federal users.
Project Leader: William J. Pomper (303) 497 3730
e-mail wpomper@its.bldrdoc.gov

Network Reliability and Restoral
Reduce vulnerabilities and enhance restoral capabilities in public telecommunication networks by spearheading the development of network reliability, restoral, and emergency service standards in NRSSC (formerly T1A1.2). Apply computer simulation, reliability analysis, security analysis, and traffic engineering to assist NCS in assessing and optimizing public network reliability, identifying network disruptions, promoting security enhancements, and restoring services, in support of Critical Infrastructure Protection initiatives.
Project Leader: Arthur A. Webster (303) 497 3567
e-mail awebster@its.bldrdoc.gov

Packet Switched Networks
Facilitate the development of Recommendations defining Emergency Telecommunications Service capabilities in ITU-T Study Group 9. Apply computer simulation, laboratory studies, security analyses, and/or traffic engineering to assist NCS in support of PDD-63 and associated Critical Infrastructure Protection initiatives related to broadband cable television networks.
Project Leader: Arthur A. Webster (303) 497 3567
e-mail awebster@its.bldrdoc.gov

Standards Promulgation Support
Advance NS/EP standards development and implementation initiatives in national and international forums; promulgate and coordinate results. Deliverables include project planning documents, technical leadership and administrative assistance in standards development activities, biannual program review presentations, and quarterly project status reports.
Project Leader: Neal B. Seitz (303) 497 3106
e-mail nseitz@its.bldrdoc.gov

Voice Over Packet and Strategic Interoperability
Assist NCS and its member organizations in defining, promoting, and implementing telecommunication technology enhancements supporting NS/EP and critical infrastructure protection needs. Participate in the TIA TR 41 Standards Formulating Group with emphasis on IP telephony gateways and their supporting infrastructure, develop technical contributions to ensure that user interfaces being developed for IP telephony satisfy NS/EP communications requirements, conduct a research and development effort to examine how TR 41 standards can best be exploited to meet NS/EP requirements, and evaluate aspects of strategic interoperability.
Project Leader: Robert Stafford (303) 497 7835
e-mail rstafford@its.bldrdoc.gov

Packet Wireless Applications
Identify emerging technologies with strong NS/EP potential, and objectively evaluate their capabilities and limitations in laboratory and field trials under representative (simulated) emergency conditions. As necessary, refine and apply existing instrumentation and methods for wireless network discovery.
Project Leader: Christopher Redding (303) 497 3104
e-mail credding@its.bldrdoc.gov

U.S. Army Information Systems Engineering Command (ISEC)

Comparison of Radio Propagation Models' Predictive Accuracies Using Measured Propagation Data
Compare two radio propagation prediction models: TIREM v3.15 and COVMOD. Provide statistics of each model's prediction error relative to the measured data.
Project Leader: Paul M. McKenna (303) 497 3474
e-mail pmckenna@its.bldrdoc.gov

U.S. Coast Guard

USCG National Distress and Response System (NDRS) Modernization Project
Provide technical assistance and services to the U.S. Coast Guard as part of its project to modernize and upgrade the current National Distress and Response System (NDRS). Specifically, assist with the Developmental Testing and Evaluation phase of the project, by attending and monitoring the Formal Qualification Test (FQT) and System Integration Test (SIT).
Project Leader: Patricia M. Raush (303) 497 3568
e-mail praush@its.bldrdoc.gov

Cooperative Research and Development Agreements (CRADAs)

Lucent Bell Laboratories

Provide Lucent with measured propagation data used for simulation of the spectral efficiency of proposed MIMO communication systems. Provide technical assistance in analyzing propagation data to measure the performance of MIMO communication systems.
Project Leader: Peter B. Papazian (303) 497-5369
e-mail ppapazian@its.bldrdoc.gov

Motorola/Freescale, Inc.

Investigate the interference potential of various UWB waveforms. Generate a range of waveforms representative of existing and proposed UWB systems. Develop measurement procedures and analyses to characterize the interfering UWB signals. Assess UWB interference susceptibility of C-band television receivers. Deliverables include an NTIA Report.
Project Leader: Michael G. Cotton (303) 497-7346
e-mail mcotton@its.bldrdoc.gov

Savi Technology

Investigate the interference effects of 400 MHz radio frequency identification (RFID) tags on analog, FM voice radio communications in that part of the spectrum. Perform tests at the ITS laboratory and the Table Mountain field site. Deliverables include a report on the final test results.
Project Leader: Frank H. Sanders (303) 497-7600
e-mail fsanders@its.bldrdoc.gov